

THAT WHICH IS CLAIMED:

1. A paperboard sheet comprising:
at least one layer containing cellulose fibers and a sufficient quantity of wood
5 sawdust such that the resulting paperboard sheet contains between 1 and 40 percent wood
sawdust by weight, wherein at least 95 percent of the sawdust by weight has a particle
size greater than 350 micrometers and less than 3175 micrometers.
2. A paperboard sheet as recited in Claim 1, wherein said at least one layer
10 contains a sufficient quantity of wood sawdust such that the resulting paperboard sheet
contains between 1 and 6 percent sawdust by weight.
3. A paperboard sheet as recited in Claim 1, wherein said at least one layer
contains a sufficient quantity of wood sawdust such that the resulting paperboard sheet
15 contains between 10 and 20 percent sawdust by weight.
4. A paperboard sheet as recited in Claim 1, wherein said at least one layer
contains a sufficient quantity of wood sawdust such that the resulting paperboard sheet
contains between 1 and 30 percent sawdust by weight.
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5. A multi-layer paperboard sheet comprising:
at least one relatively low-density paperboard layer containing cellulose fibers and
a quantity of wood sawdust, wherein at least 95 percent of the sawdust by weight has a
particle size greater than 350 micrometers and less than 3175 micrometers;
25 at least one relatively high-density layer containing cellulose fibers, wherein there
is at least a 1% difference in density between the at least one relatively low-density layer
and the at least one relatively high-density layer; and
wherein the at least one relatively low-density layer and the at least one relatively
high density layer are joined together producing a multi-layer paperboard sheet, and
30 wherein the resulting paperboard sheet contains between 1 and 40 percent wood sawdust
by weight.

6. A multi-layer paperboard sheet as recited in Claim 5, wherein said at least one relatively low-density layer and said at least one relatively high-density layer combine to contain a sufficient quantity of wood sawdust such that the resulting
5 paperboard sheet contains between 1 and 6 percent sawdust by weight.

7. A multi-layer paperboard sheet as recited in Claim 5, wherein said at least one relatively low-density layer and said at least one relatively high-density layer combine to contain a sufficient quantity of wood sawdust such that the resulting
10 paperboard sheet contains between 10 and 20 percent sawdust by weight.

8. A multi-layer paperboard sheet as recited in Claim 5, wherein said at least one relatively low-density layer and said at least one relatively high-density layer combine to contain a sufficient quantity of wood sawdust such that the resulting
15 paperboard sheet contains between 1 and 30 percent sawdust by weight.

9. A multi-layer paperboard sheet as recited in Claim 5, having at least two relatively low-density layers sandwiched between two relatively high-density layers.

20 10. A multi-layer paperboard sheet as recited in Claim 5, having at least one relatively high-density layer that is free of sawdust.

11. A multi-layer paperboard sheet as recited in Claim 5, having at least one relatively high-density layer that contains sawdust.
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12. A multi-layer paperboard sheet as recited in Claim 5, having at least one relatively low-density layer that contains between 1 and 40 percent sawdust by weight.

13. A multi-layer paperboard sheet as recited in Claim 5, wherein the
30 relatively low-density and the relatively high-density layers are placed in intimate

contact, prior to drying, in order to cause bonding between fibers, thereby joining the layers and producing a multi-layer paperboard sheet.

14. A multi-layer paperboard sheet as recited in Claim 5, wherein the
5 relatively low-density and relatively high-density layers are adhered together, thereby producing a multi-layer paperboard sheet.

15. A paperboard tube comprised of a plurality of paperboard plies, wherein
at least one of the plies has at least one layer that contains cellulose fibers and a
10 sufficient quantity of wood sawdust such that the resulting at least one paperboard ply contains between 1 and 40 percent wood sawdust by weight, wherein at least 95 percent of the sawdust by weight has a particle size greater than 350 micrometers and less than 3175 micrometers; and
wherein said plurality of paperboard plies are wound about an axis and adhered
15 together to form a paperboard tube.

16. A paperboard tube as recited in Claim 15, wherein said at least one layer contains cellulose fibers and a sufficient quantity of wood sawdust such that the resulting at least one paperboard ply contains between 1 and 6 percent sawdust by weight.
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17. A paperboard tube as recited in Claim 15, wherein said at least one layer contains cellulose fibers and a sufficient quantity of wood sawdust such that the resulting at least one paperboard ply contains between 10 and 20 percent sawdust by weight.

25 18. A paperboard tube as recited in Claim 15, wherein at said at least one layer contains cellulose fibers and a sufficient quantity of wood sawdust such that the resulting at least one paperboard ply contains between 1 and 30 percent sawdust by weight.

30 19. A paperboard tube comprised of:

a paperboard ply having at least one layer containing cellulose fibers and a sufficient quantity of wood sawdust such that the resulting paperboard ply contains between 1 and 40 percent wood sawdust by weight, wherein at least 95 percent of the sawdust by weight has a particle size greater than 350 micrometers and less than 3175
5 micrometers; and
wherein the paperboard ply is wound about an axis and overlapped on itself and adhered together to form a low-density paperboard tube.

20. A paperboard tube as recited in Claim 19, wherein the at least one layer
10 contains a sufficient quantity of wood sawdust such that the resulting paperboard ply contains between 1 and 6 percent sawdust by weight.

21. A paperboard tube as recited in Claim 19, wherein the at least one layer contains a sufficient quantity of wood sawdust such that the resulting paperboard ply
15 contains between 10 and 20 percent sawdust by weight.

22. A paperboard tube as recited in Claim 19, wherein the at least one layer contains a sufficient quantity of wood sawdust such that the resulting paperboard ply contains between 1 and 30 percent sawdust by weight.
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